Statewide Legacy Applications Assessment
Executive Summary

December 2004

With the encouragement of the State CIO, the General Assembly enacted legislation in its 2003 Session that mandates a comprehensive assessment of the State's legacy applications and the development of a plan for agencies to progress to more modern systems. Ratified House Bill 941, codified as G.S. 147-33.90, directs the Office of Information Technology Services (ITS) to analyze the State's legacy applications in two phases. The first phase, a high-level assessment completed in March 2004, indicated that the State might face significant technology and business risks from a large number of older applications, or computer programs designed to carry out a specific task. These findings initiated the second phase of the assessment that called for a more detailed analysis of needs and a timeframe for modernizing agency IT application assets.

A partnership of Keane, Inc. and Gartner, Inc. was selected from a competitive bidding process to complete a six-month assessment project that finished in December 2004. The study covered 24 executive department agencies and almost 900 individual applications. Although the consultants organized the effort, developed data items, and analyzed the information, the data was supplied by the agencies as a self-assessment exercise. The following questions were addressed for each application:

- What is the application's status?
    - o Business perspective.
    - o Technical perspective.
- What is the application's remediation strategy?
    - o Functional enhancement/remediation.
    - o Technical enhancement/remediation.
    - o Replace.
    - o Normal, on-going operations and maintenance.
- What is the application's remediation timeframe?
    - o Immediate (0 to 2 years).
    - o Near-term (2 to 4 years).
    - o Long-term (4 to 6 years).

Data from a proceeding survey by ITS indicated that over 2,400 applications would be involved. Closer scrutiny reduced this number to fewer than 900 applications. The number shrank due to the elimination of duplications and retirements in inventory listings, removal of commercial IT infrastructure tools, and the grouping of separate applications to better reflect department organizations. Costs for remediation were beyond the scope of the assessment, as these will be addressed in a succeeding study.

Summary Findings

Major findings of the legacy applications assessment are:

1. **The statewide portfolio is relatively young, with an average age of 7.5 years.**

Age Range (In Years)	Number of Applications	Percent of Total
12 plus	177	20%
9 to 12	81	9%
4 to 8	281	32%
0 to 4	260	30%
Unknown	74	9%
Portfolio Totals	**873**	**100%**

2. **The overall posture of the State's portfolio of 873 legacy applications is generally good, with only about 25% presenting problems:**

Status Description	Number of Applications	Percent of Total Portfolio
Functional Issues	56	6%
Technical Issues	91	10%
Functional and Technical Issues	57	7%
Remediation Totals	**204**	**23%**
Healthy (continue on-going, normal operations and maintenance)	238	27%
Manageable (healthy with manageable issues)	431	50%
Portfolio Totals	**873**	**100%**

3. **Approximately 11% (92 applications) of the legacy portfolio requires action in the immediate future (within the next 2 years):**

Remediation Timeframe	Number of Applications	Percent of Total Portfolio
Immediate (0 to 2 years)	92	11%
Near-Term (2 to 4 years)	306	35%
Long-Term (4 to 6 years)	475	54%
Portfolio Totals	**873**	**100%**

4. **While a majority of the applications requiring action in the immediate future should be replaced, most of those needing action in the near-term future can be modified or upgraded:**

Remediation Strategy	Immediate Timeframe		Near-Term Timeframe	
	Number	**Percent**	**Number**	**Percent**
Replacement	**55** In Process - 24 In Planning - 17 No Activity - 14	**60%**	**46** In Process - 4 In Planning - 18 No Activity - 24	**15%**
Functional Enhancement	**12** In Process - 3 In Planning - 2 No Activity – 7	**13%**	**48** In Process - 4 In Planning - 10 No Activity - 24	**16%**
Technical Enhancement	**25** In Process - 4 In Planning - 6 No Activity - 15	**27%**	**64** In Process - 3 In Planning - 14 No Activity - 47	**21%**
Subtotal - - Action Required	**92**	**100%**	**158**	**52%**
Regular Support	**0**	**0%**	**148**	**48%**
Totals	**92**	**100%**	**306**	**100%**

5. Many applications are experiencing common business, technical, and, support problems:

<u>Common Problem</u>	Number of <u>Applications</u>	Percent of <u>Portfolio</u>
Business Perspective		
Inability to meet current business requirements	97	11%
Inability to meet future business requirements	166	19%
Inability to meet reporting needs	139	16%
Dependency on limited business knowledge	145	17%
Technical Perspective		
Stability/reliability shortcomings	132	15%
Scalability (expandability) constraints	124	14%
Adaptability (changeability) restrictions	215	25%
Capacity constraints	90	10%
Software support issues	207	24%
Dependency on limited technical knowledge	118	14%

6. **Although the immediate needs of the portfolio appear to be manageable, projections of its future status if no remediation actions are taken indicate an increasingly deteriorating condition as the applications age:**

Remediation Strategy	Current No.	Current %	Plus 2 Years No.	Plus 2 Years %	Plus 4 Years No.	Plus 4 Years %
Replacement	55	6%	118	14%	233	27%
Functional Enhancement	56	7%	62	7%	26	3%
Technical Enhancement	91	10%	221	25%	332	38%
On-Going, Normal Operations and Maintenance	671	77%	472	54%	282	32%
Portfolio Totals	**873**	**100%**	**873**	**100%**	**873**	**100%**

Key Recommendations

1. **There a several opportunities for employing enterprise initiatives or approaches for the remediation/replacement of legacy applications that could address common issues in a more cost-effective manner by taking advantage of economies of scale and the leveraging of fiscal and staffing resources. These should be considered in succeeding studies and plans.** Examples include:

   - Mainframe strategy - Common strategies and tools for improving the functional capabilities and technical sustainability.

   - Computer language upgrade – Develop common migration approaches, and define enterprise products and platforms.

   - Older versions of software – Employ enterprise licenses for upgrades.

   - Desktop applications – Establish criteria/guidelines for use, and employ enterprise licenses for software and database products.

   - Reporting needs – Develop enterprise approach, including use of warehouse(s), tools, etc.

   - Skills leveraging – To the greatest practical extent, employ common staff on an enterprise scale (using the centers of excellence concept) for addressing the same or similar issues.

2. **Establish the organization, tools, and disciplines for performing the analysis of agency applications as a periodic (at least annual) recurring process performed by state staff.** Specifically, the State should:

- <u>Implement a process of ongoing review of existing IT applications</u> – Departments should periodically evaluate the posture of applications from business and technical perspectives to maximize value, identify required investments, ensure technical sustainability, and plan for retirement/replacement.

- <u>Coordinate IT applications reviews with business and IT planning efforts</u> – Link IT plans closer to the accomplishment of department missions and business strategies. Incorporate insights of applications analyses for managing legacy applications to improve governmental program results or transform business processes through the renovation or replacement of IT assets.

- <u>Optimize IT investments on department and statewide levels</u> – Employ planning and budgeting concepts, investment management practices, and portfolio management disciplines to optimize department and statewide investments for in-process projects, in-place applications and infrastructure assets, and new investments.

A more strategic approach is required for dealing with aging applications, especially to optimize costs and benefits over lifetimes. Key principles of a legacy modernization strategy are:

- Leverage opportunities for the need to improve business or program value to trigger investments in replacement or consolidation of older applications.

- Systematically abandon older technologies that do not fit into the department or statewide infrastructure, become error prone or labor intensive, are nearing the end of vendor support, or limit the productivity of business/program or IT staff.

- Maximize reuse of investments for common or statewide solutions to make the best use of fiscal resources.

- Rationalize the applications portfolio and reduce the number of applications to increase manageability and reduce costs.

Immediate Next Step

Through a succession of surveys and studies, the scope of interest in the number of legacy applications has narrowed from over 2,400 expected total portfolio to 873 actual total portfolio to less than 100 requiring action in the immediate (within the next 2 years) time period. Succeeding work activities should cover the immediate applications and address the following objectives regarding them:

- Determine the position of each application regarding replacement or remediation, including a) confirming the assessment of need and priority b) identifying the strategy for accomplishing replacement or remediation, c) accessing actual progress against plans, and d) determining the status of conformance with the State CIO's project approval and reporting process.

- Ensure linkage with State CIO's IT Plan and department's business and IT plans for priority, timing, and type of remediation.

- Determine the status of available/committed funding for replacement or remediation.

- Determine best approaches for estimating costs for replacement or remediation projects for which funding is not available or committed.

- Identify opportunities for achieving cost-efficiencies in replacement/remediation projects by employing enterprise concepts that take advantage of economies of scale (including volume procurements and statewide licenses) in using common approaches and tools and the leveraging of staffing resources.

Longer-Term Next Step

Longer-term next steps should implement the second recommendation above. The recently purchased portfolio management tool will be used to analyze and assist in managing the state's applications inventory on a frequently recurring basis.

Ties to State CIO's IT Plan

The management of the state's significant investment in its legacy applications is a critical success factor for IT management. Therefore, key initiatives of the State CIO's IT Plan for the 2005-2007 biennium address the two recommendations and the next steps above.